

SANTA MONICA BAY NATIONAL ESTUARY PROGRAM

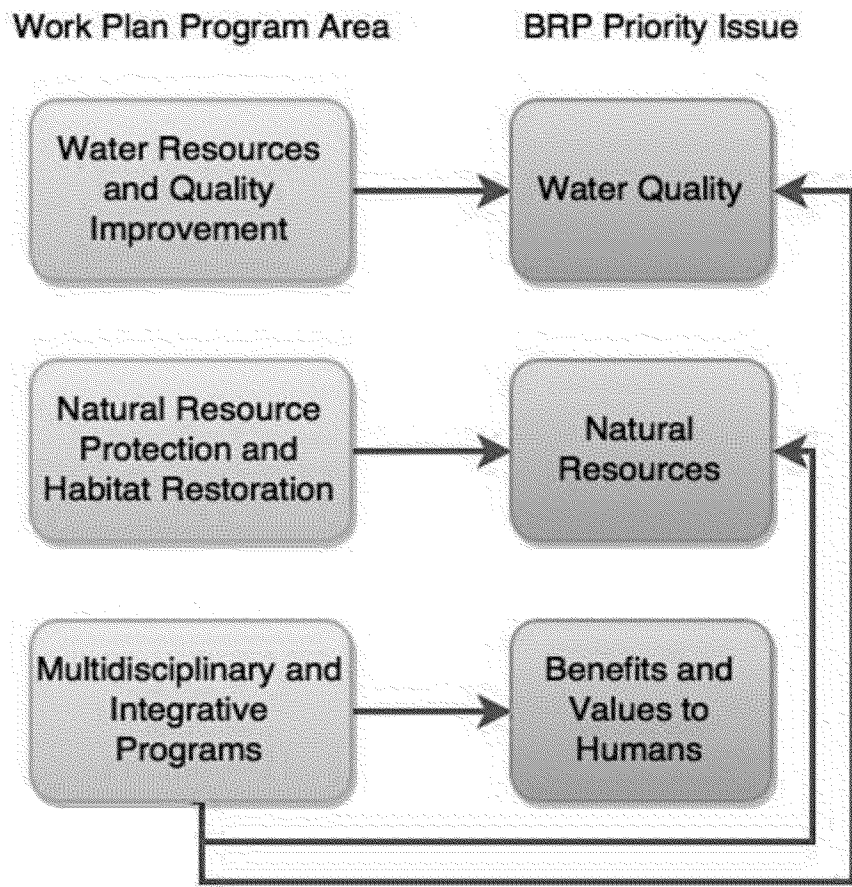
Semi-Annual Report 1 April – 30 September 2017

Prepared for the United States Environmental Protection Agency

Semi-Annual Report Overview and Structure

This semi-annual report outlines and provides an update for each of the FY17 Work Plan tasks for the time period 1 April through 30 September 2017, the second semi-annual reporting period for FY17. Many of the FY17 tasks continue past efforts. Each table summarizes the current status and a synthesis of updates for each task. For some tasks requiring more description or discussion, an extended narrative follows the table for that task.

The scope of this semi-annual report is broad and structured into three overarching Program Areas to match the structure of the FY17 Work Plan. The Program Area identified as Water Resources and Quality Improvement relates specifically to the BRP Priority Issue: Water Quality; the Program Area identified as Natural Resource Protection and Habitat Restoration relates specifically to the BRP Priority Issue: Natural Resources. There has also been more focus and efforts in FY17 on implementing programs that interconnect and integrate issues across traditional boundaries such as climate change and comprehensive monitoring. These interdisciplinary issues that cover a broad range of topics are categorized into the Work Plan Program Area: Multidisciplinary and Integrative Programs. The diagram below illustrates the connection between SMBNEP's FY17 Work Plan and BRP 2013 Priority Issues.



Each of the three Work Plan Program Areas (semi-annual reporting Program Areas) are further categorized into broad Goals and can be identified as 1.1, 1.2, etc. The table below illustrates each of the three Work Plan Program Areas and the nine Goals identified as priorities for FY17.

Work Plan Program Area	Work Plan Goal
1. Water Resources and Quality Improvement	1.1 Support regional water quality improvement planning and policies
	1.2 Improve water quality through pollution control and prevention
2. Natural Resources and Habitat Protection	2.1 Support natural resource protection policies and programs
	2.2 Restore wetlands and streams
	2.3 Restore coastal bluffs, dunes, and sandy beaches
	2.4 Restore intertidal and subtidal habitats
3. Multidisciplinary and Integrative Programs	3.1 Promote climate change vulnerability assessment and adaptation
	3.2 Conduct public outreach
	3.3 Support planning, monitoring, and organizational management

The Work Plan Goals are further divided into Objectives (at the level of 1.1a, 1.1b, etc.). Each of these Objectives contain a series of tasks identified within a table that will take strides towards reaching the Objective. This semi-annual report provides an update on each of the FY17 Work Plan tasks for all Objectives. The FY17 Work Plan Goals and Objectives are both cross-referenced within this document to the associated BRP Goal or Objective. For additional details at the goal or objective level, refer to the [final FY17 Work Plan](#). Additionally, some tasks are of a larger scope or have had significant achievements within this reporting period, and as such have a more detailed narrative summary after the table of tasks in each section.

1. Water Resources and Quality Improvement

Tasks and activities in this section of the semi-annual report are intended to advance the goals, objectives, and milestones that address water quality-related issues, as laid out in Priority Issue 1, Water Quality, of the BRP. For narrative details on each Objective and task, refer to the [final FY17 Work Plan](#).

1.1 Support regional water quality improvement planning and policies

This FY17 Work Plan objective is tied to BRP Goal 1: Improve water quality through enhancement of current regulatory framework and collaborative, integrated watershed wide planning and implementation, and Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.1a Implement storm water pollution control BMP funded through Prop. 84 bond and other grant programs; BRP 1.1				
Oversee pollution control BMPs funded through Prop. 84 bond grants	SMBRC	Lead	Ongoing	Currently developing new grant agreements; Implementation: December 2017 – 2020; Oxford Basin project completed April 2017
Facilitate availability of Prop. 1 funding for WMP and EWMP projects	SMBRC, TBF	Facilitate	Ongoing	Continued dialogue with state agencies; participated on Urban Rivers, Environmental Enhancement and Mitigation, and Urban Greening TAC which included numerous meetings, workshops, and multiple statewide site visits
1.1b Promote and participate in integrated watershed-wide water quality improvement planning and implementation; BRP 1.5, 4.6				
Support efforts to increase funding for water resiliency	SMBRC, TBF	Support	Ongoing	Continued to monitor the progress of the LA County Drought Resiliency Work Plan and funding mechanism report
Participate in sub-region Steering Committees	SMBRC	Participate	Ongoing	Continued to participate in meetings as available
Participate in IRWMP leadership group and provide technical support	SMBRC	Participate	Ongoing	Continued to attend Leadership Committee meetings and sub-regional group meetings.as open space representative on the Leadership Committee.

Summary Narratives

Prop. 84 New Project Update – Oxford Basin: The County of Los Angeles completed this project to improve water quality, enhance habitat, create passive recreational opportunities, improve aesthetics, and mitigate localized flooding conditions in the spring of 2017. The project involved improving water circulation with the construction of a circulation berm, and replacing and reprogramming the existing tide gates. The project also included the installation of a bioswale to capture additional street runoff, the removal of non-native vegetation and legacy-polluted contaminated soil, and replacement with appropriate soil and native, site-appropriate vegetation. The County also constructed a parapet wall to restore the facility's flood protection capacity. Other tasks included the installation of a permeable walking path, interpretive signage, observation decks, new fencing, and additional amenities to enhance passive recreation, public education and safety.

1.2 Improve water quality through pollution control and prevention

This FY17 Work Plan objective is tied to BRP Goal 2: Improve water quality through pollution prevention and source control.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.2a Implement green infrastructure and LID projects; BRP 2.1				
Seek new partnership and funding opportunities for new rain garden and other LID projects	TBF, SMBRC	Lead	Ongoing	Completed LADWP conservation program and funding; completed and published conservation final report ; sought additional funding and partnerships for Culver City Rain Garden monitoring; began new project with LMU graduate student to analyze long-term FIB trends in SM Bay
Facilitation of storm water monitoring and monitoring of LID effectiveness	TBF, SMBRC	Facilitate	Ongoing	Continued partnership with LMU to analyze data from two seasons of storms; results presented at DIPCON conference and being analyzed for graduate thesis due in May 2018
1.2b Implement the Boater Education Program; BRP 2.4				
Conduct pumpout monitoring	SMBRA, TBF	Lead	Ongoing	Conducted two quarterly monitoring events of 69 Southern California pumpouts; released the Pumpout Report 2016: Southern California Clean Vessel Act Pumpout Performance Report ; released Pumpout Nav app for iOS and Android mobile devices, in partnership with San Francisco Estuary Partnership; press release published
Implement Honey Pot Day (HPD)	SMBRA, TBF	Lead	Complete	Program was implemented June to August 2017 in Long Beach, L.A., Marina del Rey, and King Harbor, resulting in 106 participants and 3,326 gallons of properly managed vessel sewage, 2' x 4' program banner created for display on mobile pumpout boats

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Attend and promote boating outreach events	SMBRA, TBF	Lead	Ongoing	Produced Tide Calendars for 2018; published Changing Tide Summer newsletter; attended 4 public engagement events (MarinaFest, King Harbor Boating Safety Day, Port of LA Clean Boating Expo, and California Yacht Marina event), delivered presentation for Catalinas of Santa Monica Bay Fleet Group
Coordinate Dockwalker Volunteer Program	SMBRA, TBF	Lead	Ongoing	Completed 3 Dockwalker trainings in Marina del Rey, Newport Harbor, and San Diego - 65 individuals completed the 3-hour trainings; developed reusable, zero-waste package for 2018 Boater Kits
Seek funding for used oil recycling	TBF	Lead	Complete	CalRecycle no longer offers Used Oil Nonprofit Competitive Grants
Conduct copper TMDL outreach	TBF	Support	Ongoing	Continued contract development with the County and LARWQCB; final contract to be executed and work will begin Winter 2017
1.2c Implement the Clean Bay Restaurant Certification Program; BRP 2.2, 2.5, and 14.2				
Implementation of the Clean Bay Certified program	SMBRC, TBF	Lead	Ongoing	Continued monthly program meetings; continued semi-monthly online promotion; applied for Rathmann Challenge, Rockefeller, and Patagonia grants; hosted annual partners meeting; participated in Fiesta Hermosa, Santa Monica Pier Paddle Event, Granted Film Festival, and Cinemalibu; presented at the City of Malibu City Council meeting
Support restaurant inspections by Cities	TBF	Support	Ongoing	Continued coordination of efforts and program components for the eleven participating cities; hosted annual inspector training

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
** NEW TASK: Implement Table to Farm Composting for Clean Air	TBF	Lead	Ongoing	Established compost hub at Environmental Charter Middle School-Inglewood; enlisted 2 restaurants to participate in organics recycling; secured partnership with Social Justice Learning Institute to help manage compost; created signage for the 4-bin system; engaged media (press release); diverted 106 lbs of food waste in two weeks

Summary Narratives

Water and Energy Conservation (LADWP grant – new partnership and funding opportunities): In 2016, TBF was awarded a Los Angeles Department of Water and Power (LADWP) School-Based Community Organizations for Educational Partnership Program Grant. The overarching objective of this project was to promote energy, water, and natural gas conservation throughout LAUSD middle schools by implementing innovative educational opportunities and additional outreach strategies. This grant was completed on 31 May 2017, followed by a comprehensive final report in July 2017. Products developed for this project included a high-quality educational video, three infographics, two online story maps, and an activity packet for classroom and home use. Through this project, TBF directly engaged 286 students and seven teachers from three LAUSD schools through in-classroom visits and presentations. A project specific [website](#) has made all material available to educators, parents, and students citywide and at no cost, and a press release and online news sources have helped promote the program further.

2. Natural Resource Protection and Habitat Restoration

Tasks and activities in this section of the Annual Work Plan are intended to advance the goals, objectives, and milestones that address natural resources-related issues, as laid out in Priority Issue 2, Natural Resources, of the BRP. The BRP addresses the natural resources-related issues first by supporting better information gathering and implementation of more effective protection policies, regulations, and management programs (Goal 4), and by laying out specific steps and projects needed for protection and restoration for each of the major habitats in the Bay (Goals 7–10). For narrative details on each Objective and task, refer to the [final FY17 Work Plan](#).

2.1 Support natural resource protection policies and programs

This FY17 Work Plan objective is tied to BRP Goal 4: Create/support policies and programs to protect natural resources and Goal 13: Increase public access to beaches and open space.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.1a Promote marine ecosystem protection; BRP 4.2, 4.3, 4.4, 11.4				
Implement ocean vessel aerial monitoring project	TBF	Lead	Ongoing	Two survey flights completed; manuscript publication submitted for review to scientific journal
Participate in LA MPA Collaborative	TBF	Participate	Ongoing	Attended quarterly meeting and a statewide conference in July 2017; Contributed to small grants proposal submitted in September 2017 to support MPA outreach and education
Promote sustainable fishery management	TBF	Promote	Ongoing	Continued ongoing communications with CDFW
Expand acoustic telemetry network	TBF	Participate	Ongoing	Deployed in May 2017; data were download and sensors redeployed in July 2017; no tags were detected in this time period
Support MDR Youth Fishing Program	TBF	Support	Ongoing	Progressed to second round of LA Clippers Foundation grant program and submitted a full proposal for more fishing trips
2.1b Support stream protection and policies; BRP 4.1				
Promote creation and adoption of stream protection ordinances	TBF	Promote	Ongoing	Opportunistically participated in conversations with other groups to facilitate progress such as Heal the Bay and Surfrider

Summary Narratives

Ocean Vessel Aerial Monitoring: Since 2010, TBF has partnered with LightHawk to collect data on recreational and commercial vessel distribution and activity relative to the South Coast Marine Protected Areas (MPA) network. This work includes data from 2008 through 2017 collected via aerial surveys in an effort to understand changes in the use of different habitats by fishermen as a result of MPA implementation. Distribution models of these data have been created and a manuscript has been submitted for consideration to the scientific journal *Ocean and Coastal Management*. TBF and Dr. Amanda Zellmer at Occidental College have contributed to this manuscript. This project informs decision makers, enforcement officials, resource managers and other stakeholders regarding types, distribution and activities of vessels in Southern California coastal waters.

A grant from the Resource Legacy Fund was awarded to LightHawk and TBF received a sub-award to support aerial surveys and outreach through March 2018. TBF expects to continue quarterly surveys through 2018 to collect data and describe any emerging trends in the distribution, action, or type of vessels operating along the mainland coast of southern California.

MPA Collaborative: TBF continued to update and advance the goals of the Los Angeles County MPA Collaborative, concentrating on communication strategies and outreach for the general public. In July, TBF staff attended a quarterly meeting with the LA MPA Collaborative group and a statewide MPA Collaborative Conference held at UC Irvine. The conference was organized by the MPA Collaborative Network, the Ocean Protection Council, and Ocean Science Trust, to discuss ideas for outreach and education projects. During this reporting period, TBF also contributed to a small grants proposal to the Ocean Protection Council to support the Collaborative's outreach and education efforts in Los Angeles County.

Acoustic Telemetry Network: Four acoustic receivers were purchased by TBF to improve the coverage of the Southern California Acoustic Telemetry Network and inform the SMBNEP of the movements, positions and permanence of great white sharks and giant black sea bass. Both of these species are ecologically significant, protected by state and federal regulations and inadvertently or purposefully targeted by fishermen. Data generated by this expansion of the network will improve protection and understanding for these species.

The receivers were acquired in the late fall of 2016 and were first deployed in May 2017. In July 2017, data was downloaded and the instruments were redeployed. No tags were detected during this time period and they scheduled to be retrieved again in fall 2017.

2.2 Restore wetlands and streams

This FY17 Work Plan objective is tied to BRP Goal 7: Restore wetlands, streams, and riparian zones.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.2a Facilitate restoration of priority wetlands; BRP 7.1, 7.2, 7.5-7.8				
Implement Ballona Reserve community stewardship and invasive species removal project	TBF	Lead	Ongoing	Completed first year of restoration project; completed, submitted, and posted <u>Year 1 Annual Report</u> ; continued ongoing scientific monitoring; applied for and received a CDP permit amendment to conduct restoration activities year-round; scheduled and coordination ongoing for seven fall public restoration events (from Sept-Dec) and an event for one large school group (approximately 100 students)
Assist CDFW with the Draft EIS/R review for the Ballona Reserve	TBF	Participate	Ongoing	Continued to provide technical assistance to CDFW’s Project Management Team and DEIS/R consultants; DEIS/R released in Sept 2017 (project leads: CDFW, Army Corps)
Conduct public outreach about Ballona Reserve	TBF	Participate	Ongoing	TBF continued presentations and efforts to increase awareness of the release of the Draft EIS/R and to encourage public participation; led several tours consistent with access permits; forwarded announcements from the lead agencies to increase awareness of the DEIS/R to public (project leads: CDFW, Army Corps). As part of a separate effort, TBF conducted ongoing outreach to request participation in the iceplant removal events (e.g. TBF events webpage, social media promotion).
Conduct Malibu Lagoon post-restoration	SMBRA, TBF	Lead	Ongoing	Maintenance and volunteer events occurred once monthly; completed Year 4 monitoring;

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
maintenance and monitoring				completed, submitted, and posted Year 4 Annual Report ; conducted first half of Year 5 scientific monitoring (biological, physical, and chemical)
Implement Level 3 regional wetland monitoring program	TBF	Lead	Ongoing	Series of partnership meetings held; coordinated expert teams for data analysis on invertebrates, water quality, vegetation, and fish; drafted vegetation data analysis literature review; ongoing communications with Bight '18 scientists and other regional collaborations; produced semi-annual report in April and Oct
Facilitate restoration of other coastal lagoons in northern Santa Monica Bay	TBF	Facilitate	Ongoing	Opportunistically participated in conversations with other groups and lead agencies such as DPR, LA County, and RCDSMM
<i>2.2b Facilitate stream restoration and fish barrier removal; BRP 7.3, 7.4</i>				
Conduct Stone Canyon Creek maintenance	TBF	Lead	Ongoing	Conducted monthly volunteer restoration events; partnership with UCLA to incorporate site into restoration ecology course in development
Conduct mudsnail surveys in the Northern Bay watershed	SMBRC, TBF	Lead	Ongoing	2016 Survey Report will be available in October 2017
Facilitate projects to control crayfish and other invasive species in Santa Monica Mountains watersheds	SMBRC, TBF	Participate	Ongoing	No activity in this reporting period
Complete Arroyo Sequit fish barrier removal project	TBF	Participate	Ongoing	Project completed and final report will be available December 2017
Facilitate completion of Rindge Dam removal feasibility study	SMBRC, TBF	Facilitate	Ongoing	Draft Feasibility Study is available online

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Liberty Canyon Wildlife Crossing	TBF	Participate	Ongoing	Installation of fencing, removal of vegetation, planting of native vegetation, planning and permit development, and permit acquisition (Project partners: Caltrans, RCDSMM, MRCA)
Participate in restoration of lower Topanga Creek	SMBRC, TBF	Participate	Ongoing	Opportunistic communications are ongoing (Project partners: DPR, RCDSMM, CADFW)
Identify funding sources and promote stream restoration and fish barrier removal projects	SMBRC, TBF	Promote	Ongoing	Attended multiple, state-wide site visits for Urban Rivers program; TAC for the Urban Rivers program met in early 2017 and recommended 19 projects for funding – awards pending; reviewed applications for Urban Greening program; TAC for the Urban Greening program met in July 2017 to recommend applications for site visits; State-wide site visits will occur between August and December 2017; opportunistic communications and funding searches are ongoing; explored ideas for Proposition 1 funding

Summary Narratives

Ballona Community Stewardship Restoration Project: During this time period, TBF submitted the [Year 1 Annual Report](#) for the “Ballona Wetlands Restoration: Community Iceplant Removal Project” prepared for the California Coastal Commission to meet the annual reporting requirements for Coastal Development Permit No. 5-15-1427. The report summarized restoration activities and monitoring results from 1 September 2016 through July 2017.

During Year 1, TBF and community volunteers concentrated restoration efforts on removing invasive iceplant from the project site. Over 15 tons of iceplant (more than 200 cubic yards) were removed from the restoration area to a green waste dumpster for composting offsite. Initial iceplant removal efforts were followed by heavy winter rains. Many non-native species are highly adapted to respond quickly and grow much faster than their native competitors. Due to the high level of degradation of the Reserve, and the significant presence of non-native vegetation immediately adjacent to the project site, non-native vegetation growth occurred in some areas after the initial iceplant removal. Nativity of vegetation cover was highly variable and patchy, with both native and non-native vegetation growth in the project area. Non-native vegetation cover was predominantly annual grasses and herbaceous species, with very little iceplant regrowth. Native vegetation growth was predominantly saltgrass and

alkali weed. Long-term restoration of the project site will likely require a period of ongoing efforts to remove non-native, invasive vegetation, and continued monitoring will inform necessary adaptive management decisions. Supplemental planting or seeding of native vegetation will continue to be considered as part of the project's Monitoring and Implementation Plan. On 11 August 2017, the Coastal Commission voted unanimously to approve a permit amendment that would allow for year round weeding activities to take place and an extended tarping deployment time to more effectively target invading vegetation. Monitoring and maintenance of the site is ongoing, with seven public events scheduled for this fall (September through December 2017) and an additional event planned for a large school group (approximately 100 students).

Malibu Lagoon: In August 2017, TBF published the [Malibu Lagoon Restoration and Enhancement Project Comprehensive Monitoring Report \(Year 4\)](#), available online. This comprehensive report includes comparative evaluations of pre- and post-restoration data. As noted in the report, the Year 4 data suggest that the project is currently meeting or exceeding required success criteria, and there has been a consistent increase in vegetation cover over time and a substantial increase in CRAM score (wetland condition assessment) over time. The water quality, circulation, and dissolved oxygen have all also improved, post-restoration. The fish and bird communities are doing well, and the lagoon appears to be highly functional based on the monitoring metrics and identified success criteria.

Additionally, TBF completed the first half of the fifth year of site-wide monitoring at the Malibu Lagoon Restoration and Enhancement project, including the full suite of required post-restoration monitoring parameters such as water quality and circulation, sediment quality, vegetation, algae, birds, fish, benthic invertebrates, and photo point surveys.

Stone Canyon Creek: TBF continued hosting monthly volunteer events focused on removing invasive vegetation from the creek site. Additionally, TBF worked with UCLA professors and over 60 students, who incorporated the site into a restoration ecology course. Students learned monitoring techniques during on-site labs, measuring native and invasive vegetation cover, avifauna presence, human use impacts, and conducting California Rapid Assessment Method (CRAM) monitoring. Additionally group projects investigated historic stream hydrology and identified potential future funding sources. The engagement with UCLA professors and students continues to provide opportunities that benefit both students and the Stone Canyon Creek restoration site, and future restoration ecology courses hope to continue incorporating the project into their curriculum.

2.3 Restore coastal bluffs, dunes, and sandy beaches

This FY17 Work Plan objective is tied to BRP Goal 8: Restore coastal bluffs, dunes, and sandy beaches.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.3a Restore coastal dune and bluff habitats; BRP 8.1				
Conduct monthly volunteer restoration events at LAX Dunes	TBF	Lead	Ongoing	Conducted monthly restoration events funded by SCC; completed quarterly summary reports; completed and posted <u>Year 1 Annual Report in June</u>
Explore partnership with LAWA for 48-acre LAX Dunes restoration	TBF	Lead	Ongoing	Continued drafting MOU with the City of Los Angeles
Coordinate Coastal Clean-up Day at LAX Dunes	TBF	Lead	Ongoing	Hosted CCD at the dunes on 16 September 2017; 50 volunteers pulled 11 bags of iceplant, 43 bags of Russian thistle, and two bags of non-native grasses all weighing over 550 lbs
2.3b Protect and restore sandy beach habitats; BRP 8.2				
Implement the Santa Monica beach restoration pilot project	TBF	Lead	Ongoing	Continued ongoing scientific monitoring and site maintenance / trash pickups; completed and released <u>Year 1 Annual Report</u> in August 2017; documented nesting snowy plovers for the first time in LA region in almost 70 years
Facilitate standardized sandy beach monitoring	SMBRC, TBF	Facilitate	Ongoing	Opportunistically searched for funding; ongoing communications through regional stakeholder groups such as the Beach Ecology Coalition and local beach management groups through Audubon for plover and least tern surveys; began coordination with UCSB scientists to collect invertebrate data as part of SaMo Pilot project

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Conduct the “Healthy Beaches” project	TBF	Participate	Ongoing	Project continued through TBF summer intern program (see details in Section 3.2b)

Summary Narratives

LAX Dunes Restoration: Work continues through the State Coastal Conservancy’s Explore the Coast Grant that is being used for the Coastal Dune Community Stewardship Project, an educational and hands-on restoration program at the LAX Dunes. During this time period, the [Year 1 Annual Report](#) was completed and released, and six events were held, including Coastal Cleanup Day, in which 50 volunteers collected 550 lbs of weedy invasive vegetation including Russian thistle and iceplant.

Santa Monica Beach Restoration Pilot Project: This Pilot Project, conducted in partnership with the City of Santa Monica, is restoring three acres of sandy coastal habitats on the beaches of Santa Monica to bring back a healthy, diverse coastal plant and wildlife community. The project is evaluating increased protection for our coastal infrastructure and residences from sea level rise and erosion, while also providing a vital refuge for invertebrates, birds, and rare coastal vegetation species.

The Pilot Project had a successful first year of implementation, culminating in the publication of the Year 1 Annual Report which highlighted some of the projects’ successes and learning opportunities. The project installed sand fencing, restricted grooming in an approximately 3-acre area, allowed vegetation to grow and sand hummocks to form along fence lines, positively engaged the public, created new partnerships and outreach connections, provided comprehensive science-based monitoring data to inform soft-scape beach restoration solutions, and began bringing back a rare coastal habitat type to the Los Angeles region. Throughout the summer, purple and yellow flowers bloomed from the thousands of germinated seedlings and small plants. Additionally, the increased functions within the restoration area included benefits to several notable species, such as providing nesting habitat for the federally threatened western snowy plover, which had not nested in the Los Angeles region for almost 70 years. The first nest was found within the restoration area and contained three eggs. Please read the [Year 1 Report](#) for more details and pictures. Site checks and scientific monitoring are ongoing.

2.4 Restore rocky intertidal and subtidal habitats

This FY17 Work Plan objective is tied to BRP Goal 9: Restore rocky intertidal and subtidal habitats.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.4a Promote protection of rocky intertidal habitats; BRP 9.2				
Promote protection of rocky intertidal habitats	TBF	Promote	Ongoing	Continued ongoing communications with collaborators; undergraduate intern from LMU completed a rocky intertidal research project mapping micro-topography and assessing biodiversity
2.4b Restore and enhance rocky reef habitat; BRP 9.1				
Implement the Rocky Reef / Kelp Forest Restoration Project	TBF	Lead	Ongoing	1.4 acres restored April 2017 to September 2017; 41.4 acres restored for the total project to date; average urchin density reduced from 18.5/m ² to 1.4/m ² ; several public presentations given; Year 4 annual report submitted to CDFW
2.4c Reintroduce and restore abalone; BRP 9.3				
Restore green abalone	TBF	Lead	Ongoing	Quarterly monitoring of outplanting location continued; conducted tissue sampling for genetic analysis; collected wild broodstock; 4 deck spawning events
Restore white abalone	TBF	Lead	Ongoing	Funding received from NOAA NMFS to expand aquaculture facility, conducted 4 red abalone spawning experiments; collected wild broodstock, successful settlement of larvae in the lab.

Summary Narratives

Palos Verdes Kelp Forest Restoration Project: Teams of restoration divers (SCUBA) have been clearing the ocean floor of over-populous sea urchins, thereby reducing herbivory and allowing for the natural recruitment and development of the giant kelp community. During the reporting period of 1 April, 2017 through 30 September, 2017, 1.4 acres of reef have been cleared of excess urchins. The average urchin density has been reduced from 18.5/m² to 1.4/m² across the total 41.4 acres restored since the

beginning of the project in July 2013. Early results from this work are already apparent, with the development of a variety of macroalgae occurring on the reefs in all sites as well as increases in fish species richness and biomass. In some locales, giant kelp (*Macrocystis pyrifera*) has reached impressive lengths exceeding twenty five feet and creating a canopy at the surface of the ocean. Presentations of the progress of this ongoing project were made at the Eco Dive Center Club night, City of Santa Monica Office of Sustainability and Environment, and Loyola Marymount University Environmental Science Department. An abstract and submission to speak at the upcoming annual meeting of the Western Society of Naturalists and is awaiting approval.

Weather conditions continued to be favorable this spring and summer allowing monitoring and restoration teams to dive more consistently. Additional restoration blocks will be identified, pre-monitored, and cleared during the next period. During July 2017, Vantuna Research Group divers completed subtidal surveys at six long-term CRANE sites on Palos Verdes Peninsula. VRG and TBF performed analyses for project reporting and are continuing manuscript preparation.

Restore Green Abalone: Quarterly non-invasive monitoring surveys continued at the green abalone outplanting site. During this survey, 15 of the 93 observed green abalone had tentacles removed for genetic analysis to determine parentage, e.g. to distinguish between naturally occurring and outplanted abalone at this restoration site. In July 2017, 17 wild green abalone were collected off Catalina Island and brought into captivity to support method development for spawning green abalone. Four deck spawning trials of green abalone at Catalina Island were conducted on May 19, July 12, August 10, and September 5. One male spawned on August 10, 2017, the first successful spawning of an individual since August 2014. Kelp at the collection site has been mostly absent due to the warmer sea surface temperatures over the last 2 year. Cooler waters have returned and kelp is currently established at the site. Abalone collected appear to be healthier and have higher gonad indices scores which will hopefully result in more successful spawning attempts through the fall and winter. The refinement of these methods will support efforts by TBF, NOAA, NMFS, and CDFW to produce large numbers of green abalone to restore them to the rocky reef systems of southern California.

Restore White Abalone: Red abalone are used as a proxy for white abalone for restoration technique development. This is in response to the species' shared range, depth, bottom type, food preference and the endangered status of the white abalone. To increase the infrastructure and develop methods for white abalone recovery, TBF completed the construction of its Abalone Laboratory at the Southern California Marine Institute in June 2016. The space serves as a wet lab and hatchery for abalone rearing, experimentation, and long-term housing of broodstock. The facility is a registered aquaculturist and has been certified as "sabellid free" by CDFW. Three captive red abalone spawning events were conducted in the lab: April 14, May 26, June 16, and September 15. Animals spawned during three events, and had successful fertilization September 2017. Captive abalone will be spawned each month to refine techniques in spawning, larval settling, and culturing of juveniles. A broodstock collection permit was acquired, and the first wild broodstock, i.e. 10 red and 10 green abalone, were collected in December 2016 and January 2017. The required six month health assessment period ended in June 2017 and with CDFW approval, an additional 17 green abalone were collected and brought into captivity. The collection permit allows 40 individuals of each species to be housed in the facility for spawning and outplanting trials. The remaining abalone will be collected before December 2017.

3. Multidisciplinary and Integrative Programs

Due to their multidisciplinary and integrative nature, Objectives and tasks in this section of the semi-annual report are tied to and provide essential support for implementation of all goals, objectives, and milestones of the BRP including information gathering and dissemination, fund raising, and organizational management. For narrative details on each Objective and task, refer to the [final FY17 Work Plan](#).

3.1 Promote climate change adaptation

This FY17 Work Plan objective is tied to BRP Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.1a Conduct climate change vulnerability assessment and policy improvements; BRP 4.5				
Implement BRP revisions consistent with vulnerability assessment	SMBRC, TBF	Lead	Ongoing	BRP revision process and timeline were developed, presented to, and discussed at the June and August Governing Board meeting
Participate in AdaptLA project	SMBRC, TBF	Participate	Ongoing	Continued communications about disseminating CoSMoS modeling results and applications to SLR planning in Los Angeles; website: http://dornsife.usc.edu/uscseagrant/adaptla/
Promote "softscape" measures for adapting to climate change impacts	SMBRC, TBF	Promote	Ongoing	Applied for Prop 1 funding to restore Zuma Beach as potential climate adaptation strategy; continued conversations with beach managers and agencies
3.1b Conduct research on local impacts of climate change; BRP 4.5 and ALL				
Implement kelp forest hydrodynamics study	TBF	Participate	Ongoing	Continued quarterly checks/download; targeted completion date: January 2018
Monitor ocean acidification	SMBRC, TBF	Participate	Ongoing	Sensors maintained and data downloaded throughout most of reporting period; sensors retrieved on 1 September and returned to manufacture(s) for calibration; meeting held among partner agencies to plan new location for redeployment; sensors will be redeployed in late 2017 at a deeper location in the Bay

Summary Narratives

Kelp Forest Hydrodynamic Study: This research project is conducted in partnership with UC Davis Bodega Marine Lab, and new partner California State University Northridge. The project continues to inform how kelp forests influence current patterns, wave velocity, and sediment transport off the coast of the Palos Verdes Peninsula. TBF's [kelp forest restoration](#) sites make ideal study areas, allowing instruments to measure physical, chemical, and biological data before the presence of kelp in an urchin barren, and after the presence of kelp when restoration work is complete.

Pre-study site monitoring is currently in progress and will continue throughout the duration of oceanographic sensor sampling period. Bathymetry, substrate type, and rugosity data have been collected for the entire study area. Initial kelp presence/absence surveys have been completed, and further presence/absence surveys will continue throughout the sensor sampling period to quantify changes in kelp forest densities throughout the study. Pressure sensors are being used to measure changes in wave height to explore the effects of kelp on wave attenuation. Three SeaBird26 Seagauge Wave and Tide Recorders (SBE26) have been deployed in a line perpendicular to the shore, spanning inside and outside the kelp habitat. Seven months of SBE26 data have been collected and the sensors are currently on their sixth deployment. Open Wave Height Loggers (OWHLs) are still in the field test and calibration stage. Once the calibration stage is complete, OWHLs will be placed along the sensor transect to improve spatial and temporal resolution of the wave height data (the SBE26s record pressure for 20 days at a time, while the OWHLs record pressure continuously). One unit has been field tested and calibrated with the SBE26s.

Three Acoustic Doppler Current Profilers (ADCPs) were deployed during the previous reporting period. Those data have been downloaded and the equipment was redeployed. These instruments measure water current velocities, spanning from the benthos to the surface, using sound waves that are scattered back from particles in the water column. The ADCPs have collected four months of data. Battery replacement and data download occurs once every three and a half months to optimize battery usage and time in the field. Temperature loggers were also deployed alongside the ADCPs to measure vertical stratification of the water column, which plays a key role in nutrient supply and circulation within a kelp forest. Five months of temperature data have been collected and processed. Temperature loggers have been redeployed and will continue to collect data throughout the duration of the oceanographic sensor deployments.

In conjunction with the hydrodynamic study, monthly water sampling is conducted with the support of undergraduate researchers from UCLA's Institute of the Environment. They are studying how kelp forests influence ocean chemistry to determine if kelp forests serve as refugia from ocean acidification and presented preliminary result in June 2017. The final sampling date was in August 2017. A grant proposal to USC SeaGrant has been submitted and is pending approval to continue this effort in 2018.

3.2 Conduct public outreach and increase collaborations

This FY17 Work Plan objective is tied to all the BRP Goals through one or more elements of communication as part of outreach efforts. Specifically, Goals 2, 6, and 14 are directly facilitated by various communication strategies.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.2a Create and manage communications; BRP – ALL				
Conduct press and media communications	SMBRC, TBF	Lead	Ongoing	Released <u>seven press releases</u> , 33 media items published; responded to media questions as asked
Publish newsletters and SMBNEP outreach materials	SMBRC, TBF	Lead	Ongoing	Released two quarterly <u>Baywire newsletters</u>
Maintain websites	SMBRC, TBF	Lead	Ongoing	Updated TBF website bi-monthly; updated SMBRC website as needed.
Promote social media communications	SMBRC, TBF	Lead	Ongoing	Semi-weekly posts on FB, Twitter and Instagram
Attend conferences	TBF	Participate	Ongoing	No updates during this reporting period
3.2b Coordinate the internship and volunteer program; BRP Goals 6, 7, 8, 9				
Implement the internship and volunteer program	TBF	Lead	Ongoing	Continued coordination meetings and ongoing student recruitment; conducted at least four volunteer events monthly; <u>six LMU student interns</u> completed projects over the summer – see details below
3.2c Participate in and provide technical support to stakeholder groups; BRP – ALL				
Participate in stakeholder groups involved in BRP implementation	SMBRC, TBF	Participate	Ongoing	Ongoing throughout the work plan time period; see other tasks
Participate in PV Shelf and FCEC risk communication activities	SMBRC	Participate	Ongoing	Participated in, and provided input on EPA’s remediation plan at the technical information exchange group meetings held by EPA Superfund program on 20 June
3.2d Oversee the Public Involvement and Education (PIE) mini-grants program; BRP – ALL				
Raise funding from local sponsors and initiate a	TBF	Lead	Pending	No funding opportunities emerged during this reporting

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
new round of PIE program				period; effort to seek new funding opportunities and grant applications will continue

Summary Narratives

Press and Media Communications: SMBRC and TBF continue efforts to reach out and generate local, regional, and national media coverage in various forms. Seven TBF press releases were written and distributed, with 33 media pieces delivered, including print and online articles, one radio and one TV. There were additional media published beyond the 33 that included re-postings of press releases (11), TV stories with no links (2), and simple listings of events in larger newsletters (3).

SMBNEP Annual Report and Baywire: Press releases and individual pitches to reporters are ongoing. The electronic Baywire newsletter was published and distributed in June and in September on both the SMBRC and TBF websites.

Social Media and Website: Social media continues to be one form of generating local, regional, and national outreach and engagement, highlighting projects, field work, earned media, volunteer opportunities, and related campaigns (i.e. ANEP) using educational videos, project-related images, and articles. Social media for TBF includes Instagram (958 followers), Facebook (2,785 Likes), Twitter (1,047 followers), YouTube, and Flickr. The website offers information and connectivity through home page updates, Twitter feed, and updates to events, project pages, reports and publications, and includes a regularly updated Media Center.

Internship Program: The internship/volunteer program continued to provide educational and hands-on opportunities for students and the community. Internship opportunities included: Ballona Community Iceplant Removal Project, Culver City Rain Garden, LAX Dunes Preserve, Malibu Lagoon Restoration and Enhancement Project, Stone Canyon Creek Restoration, LMU Rain Garden events, other restoration events, and various LMU Center for Urban Resilience (CURES) and Seaver College of Science and Engineering projects. Student interns and volunteers come from local universities and high schools such as LMU, California State University Los Angeles, Pepperdine University, UCLA, USC, Santa Monica College, Marymount High School, Culver City High School, and El Segundo High School. At least four events were coordinated monthly.

TBF launched a new summer intern program with the Fred Seaver College of Science and Engineering at Loyola Marymount University. Six paid internships were competitively awarded to LMU students to advance projects and research related to the Bay Restoration Plan. These undergraduates gained real world experience while conducting applied science with TBF staff and LMU faculty. Planning for next summer's interns is underway, with TBF and LMU supporting up to 12 interns in 2018. Please read up on all the students and their experiences in their own words: <http://www.santamonicabay.org/get-involved/meet-2017-summer-interns/>.

3.3 Support planning, monitoring, and organizational management

This FY17 Work Plan objective is tied to all BRP Goals.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3a Seek and increase funding for BRP implementation; BRP – ALL				
Seek grant funding for implementation of specific BRP objectives and milestones	SMBRA, TBF	Lead	Ongoing	During this reporting period, new grants were awarded, including Table-To-Farm grant, Aerial Survey grant, Environment Now grant, Patagonia grant, as well as continuation of funding of existing grants
3.3b Support comprehensive monitoring of Bay health; BRP 4.7, 10.1 and ALL				
Refine indicators and improve data collection mechanisms for SotB Report	SMBRC, TBF	Lead	Ongoing	Further discussed and reached consensus on the approach and plan to update the Bay Comprehensive Monitoring Program (at June 2017 TAC meeting); continue to work with lead TAC members on updating the monitoring program for four habitats (rocky intertidal, sandy shore, wetlands, and pelagic system) identified by the TAC
Design and implement pilot fish larvae survey and pilot deep reef survey	SMBRC, TBF	Participate	Ongoing	Study of the feasibility of ichthyoplankton meta-barcoding for routine monitoring by partner agencies (LACSD, City of LA) is ongoing
Assess offshore eelgrass beds in Santa Monica Bay	TBF	Facilitate	Ongoing	Completed building the new ROV and tested in pool (many dives) and ocean (four dives); ongoing communications with other stakeholder groups such as Morro Bay NEP and SFEP; solicited donation requests for R2Deep2 at the TBF annual fundraiser
Incorporate comprehensive monitoring program into NPDES permits	SMBRC, TBF	Participate	Ongoing	Ongoing based on permit renewal schedule, completed and submitted annual (2016) implementation progress report to LARWQCB

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3c Support organizational management; BRP – ALL				
Track BRP implementation progress through semi-annual reporting	SMBRC, TBF	Lead	Ongoing	Produced and submitted the semi-annual report for the October 2016 – March 2017 period
Track BRP implementation progress through annual GPRA reporting	SMBRC, TBF	Lead	Ongoing	Tracking leverage funding and habitat acreages continued; completed and submitted GPRA report on 8 September 2017
Support SMBRC GB meetings	SMBRC	Lead	Ongoing	Meets bi-monthly: held meetings on 20 April, 15 June, and 17 August 2017
Support SMBRC EC meetings	SMBRC	Lead	Ongoing	Meets bi-monthly: held meetings on 18 May, 20 July, and 26 September 2017
Support SMBRC TAC meetings	SMBRC	Lead	Ongoing	Meets quarterly and as needed: held a meeting on 29 June 2017
Support SMBRC WAC meetings	SMBRC	Lead	Ongoing	Will meet multiple times in 2017. Planning ongoing for several winter meetings
Support SMBRA board meetings	SMBRA	Lead	Ongoing	Meets quarterly or as needed: held meetings on 20 April and 17 August 2017
Support TBF board meetings	TBF	Lead	Ongoing	Meets annually or as needed: held meetings on 10 May and 23 August 2017
Conduct general management and reporting activities	SMBRC, SMBRA, TBF	Lead	Ongoing	Completed FY18 Work Plan after final review and approval by the GB on 20 April 2017